FIG.1A

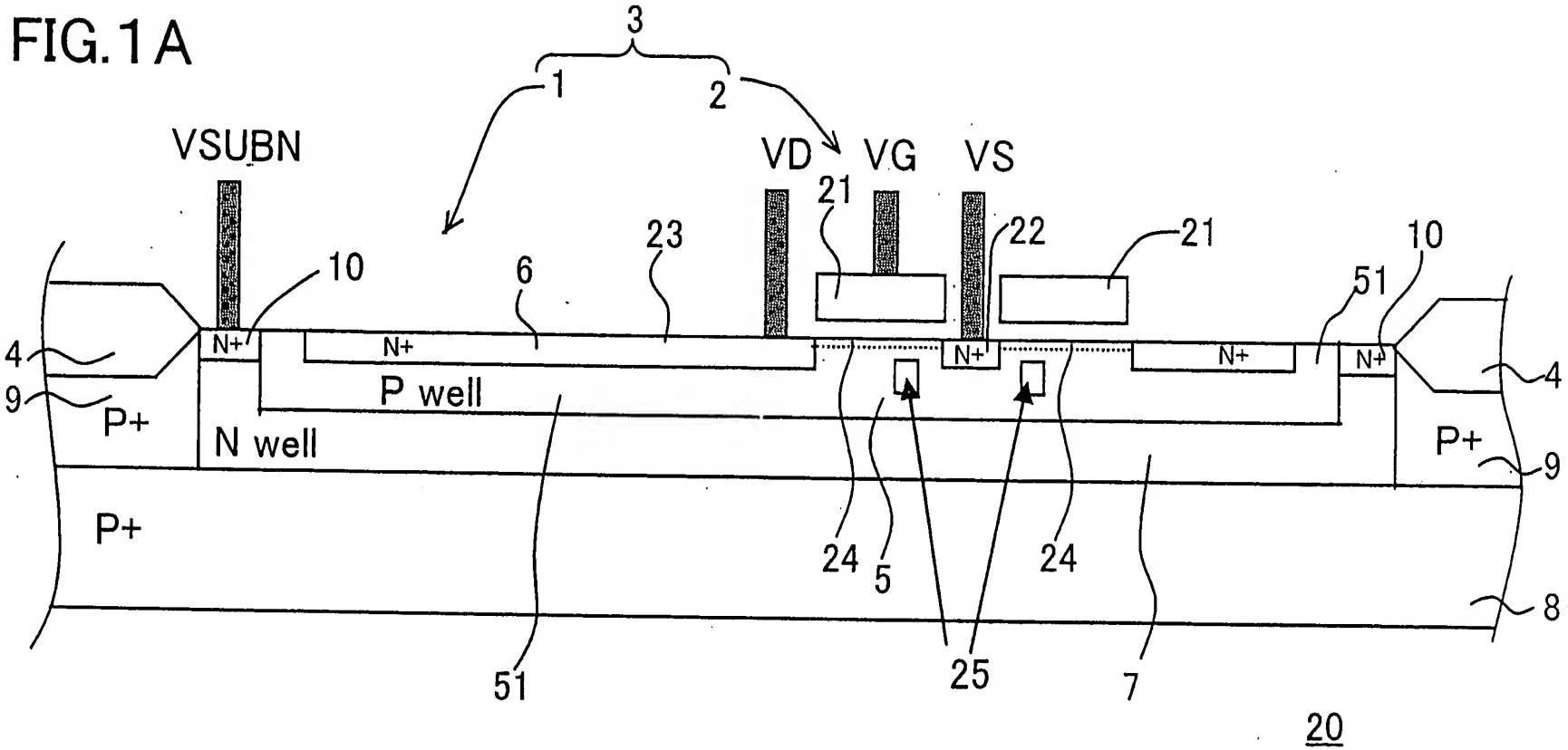

3
1
2
VSUBN
VD
VG
VS
21
23
22
21
10
6
51
10
4
N+
N+
N+
N+
N+
4
9
P well
P+
N well
P+
9
P+
24
5
24
8
51
25
7
20

FIG.1B

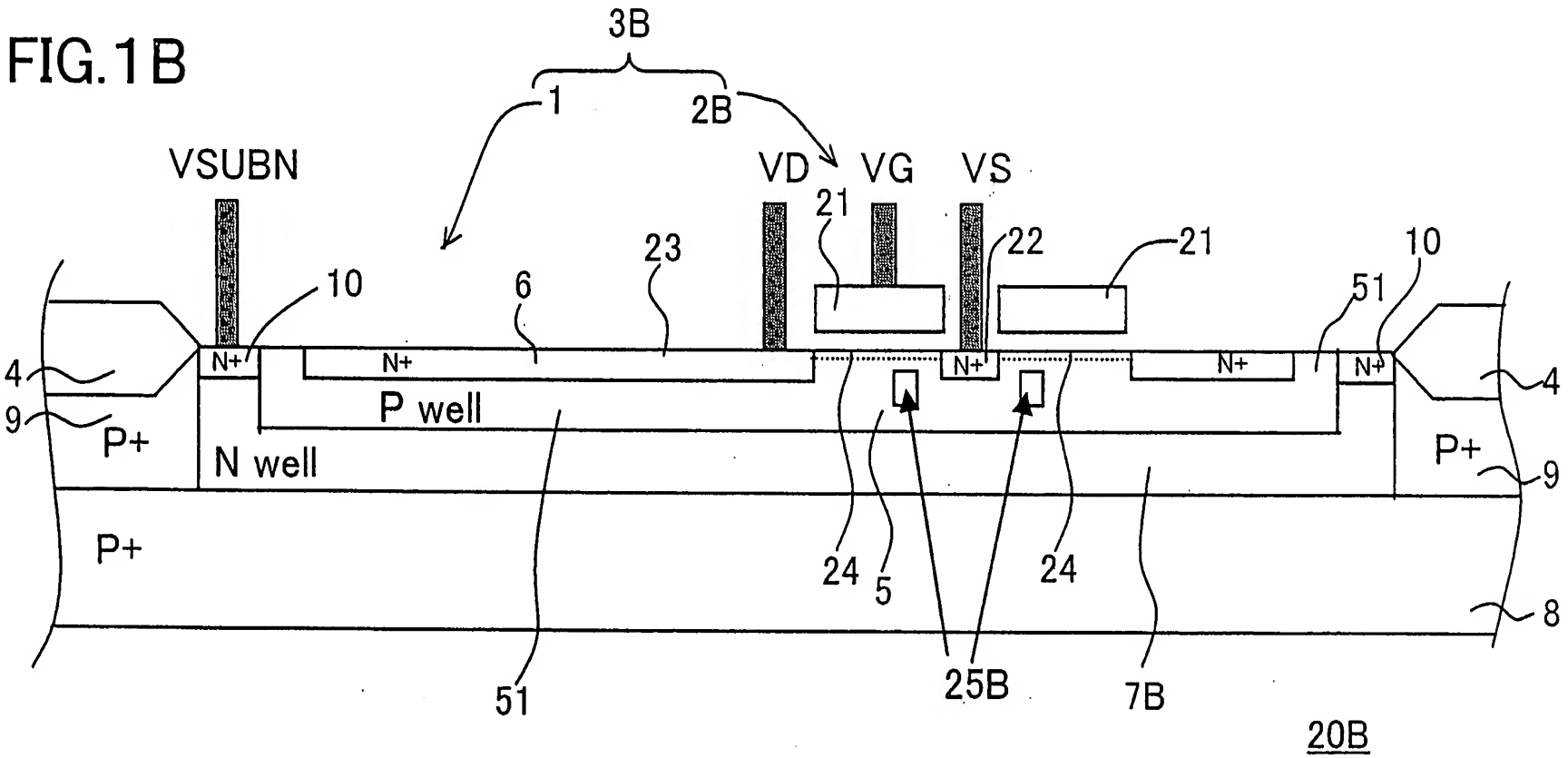

3B
1
2B
VSUBN
VD
VG
VS
21
22
21
23
10
6
51
10
N+
N+
N+
N+
4
9
P+
P well
N well
P+
4
P+
9
P+
24
5
24
8
51
25B
7B
20B

FIG.2

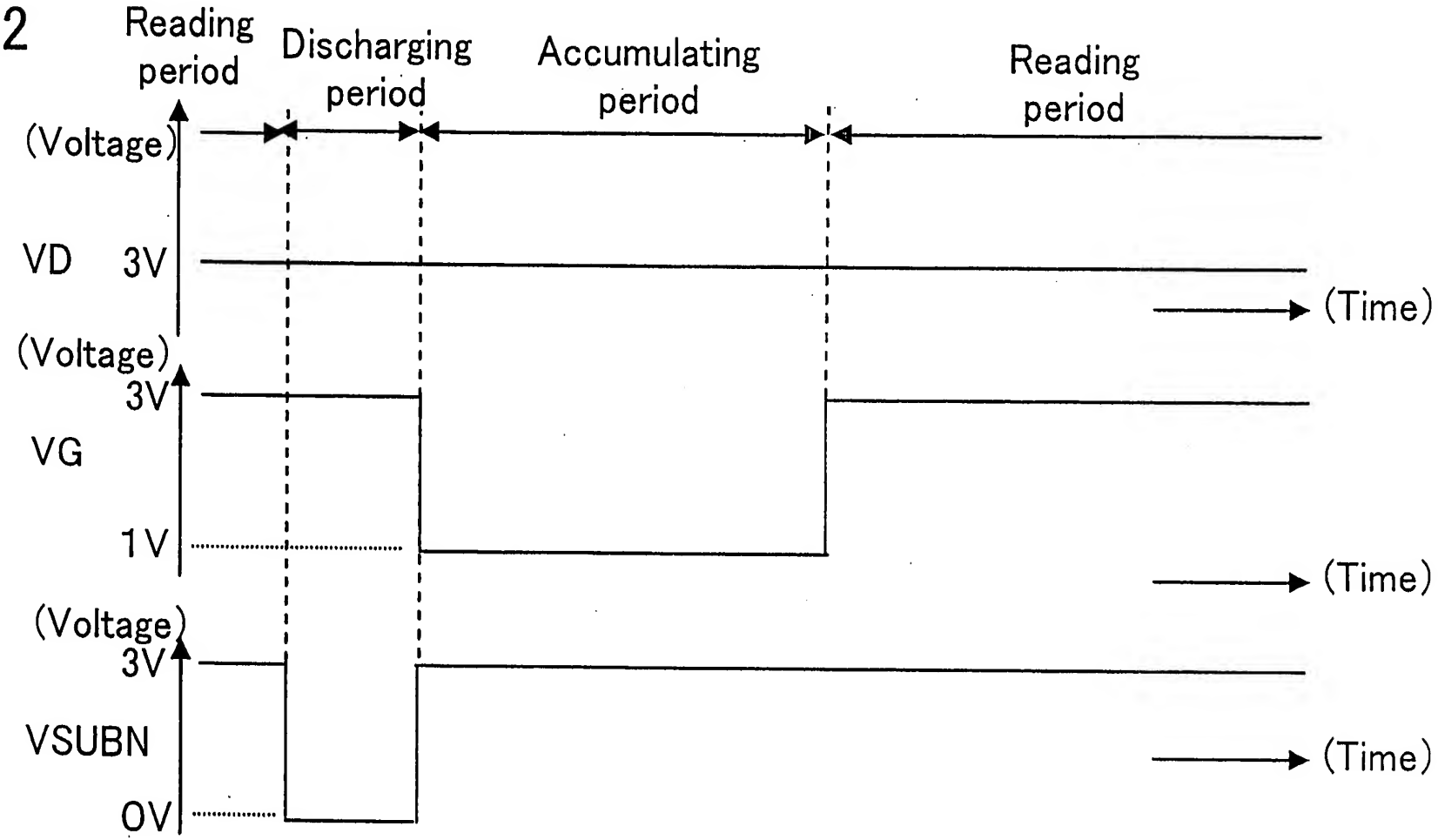

Reading period
Discharging period
Accumulating period
Reading period
(Voltage)
VD
3V
(Time)
(Voltage)
3V
VG
1V
(Time)
(Voltage)
3V
VSUBN
0V
(Time)

FIG.3

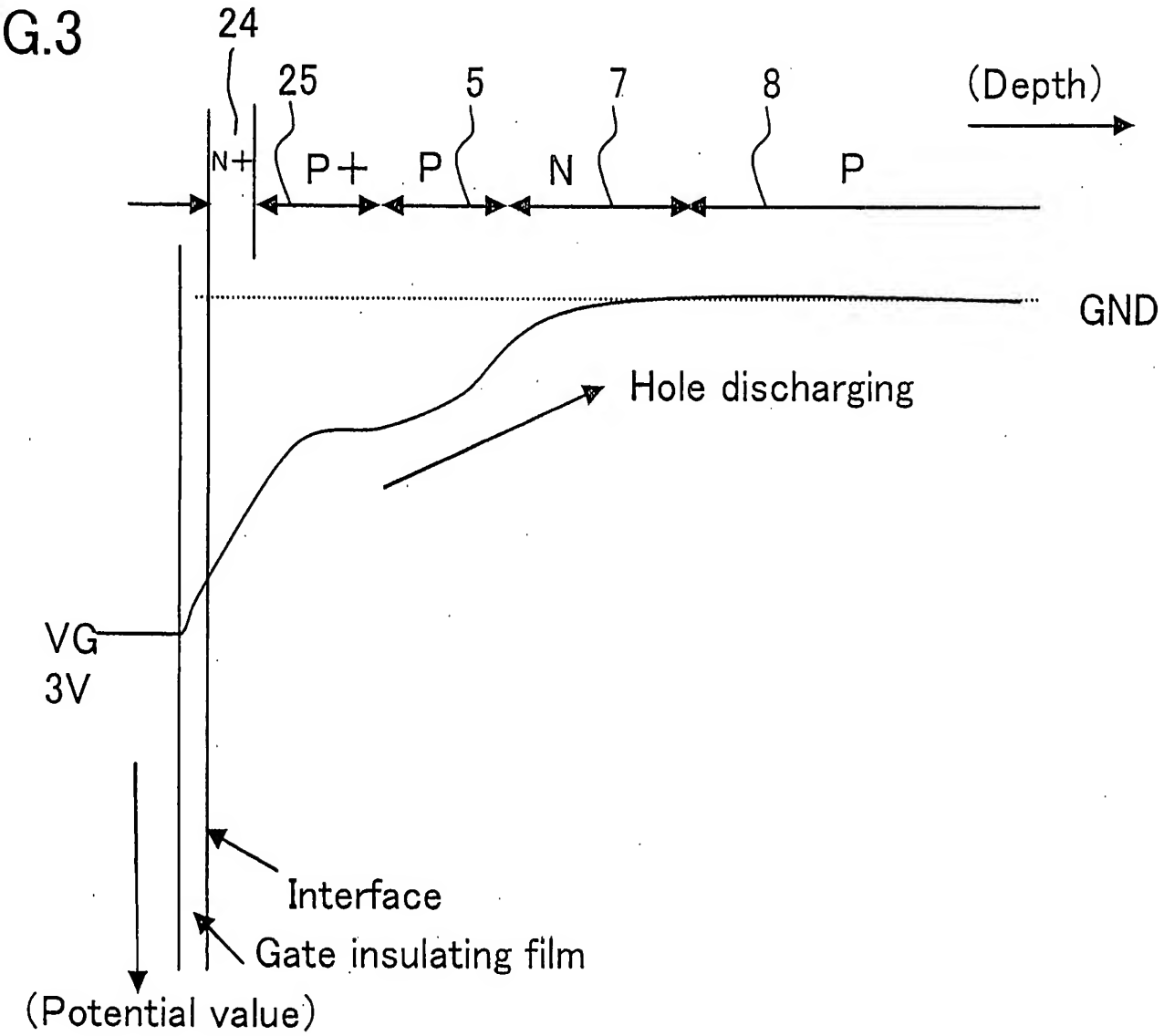

24
25
5
7
8
(Depth)
N+
P+
P
N
P
GND
Hole discharging
VG
3V
Interface
Gate insulating film
(Potential value)

FIG.4

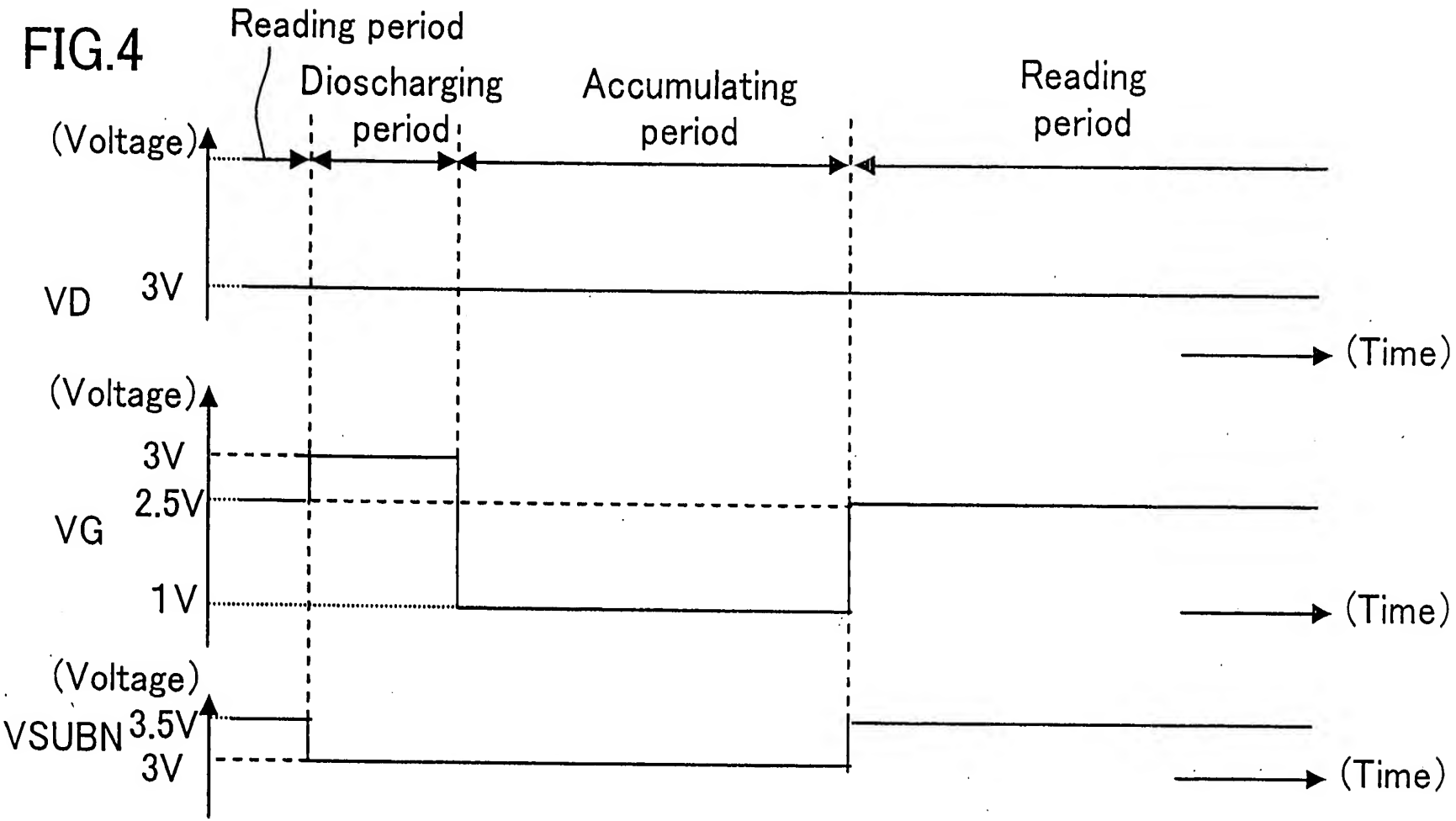

Reading period
Dioscharging period
Accumulating period
Reading period
(Voltage)
VD
3V
(Time)
(Voltage)
3V
2.5V
VG
1V
(Time)
(Voltage)
VSUBN
3.5V
3V
(Time)

FIG.5

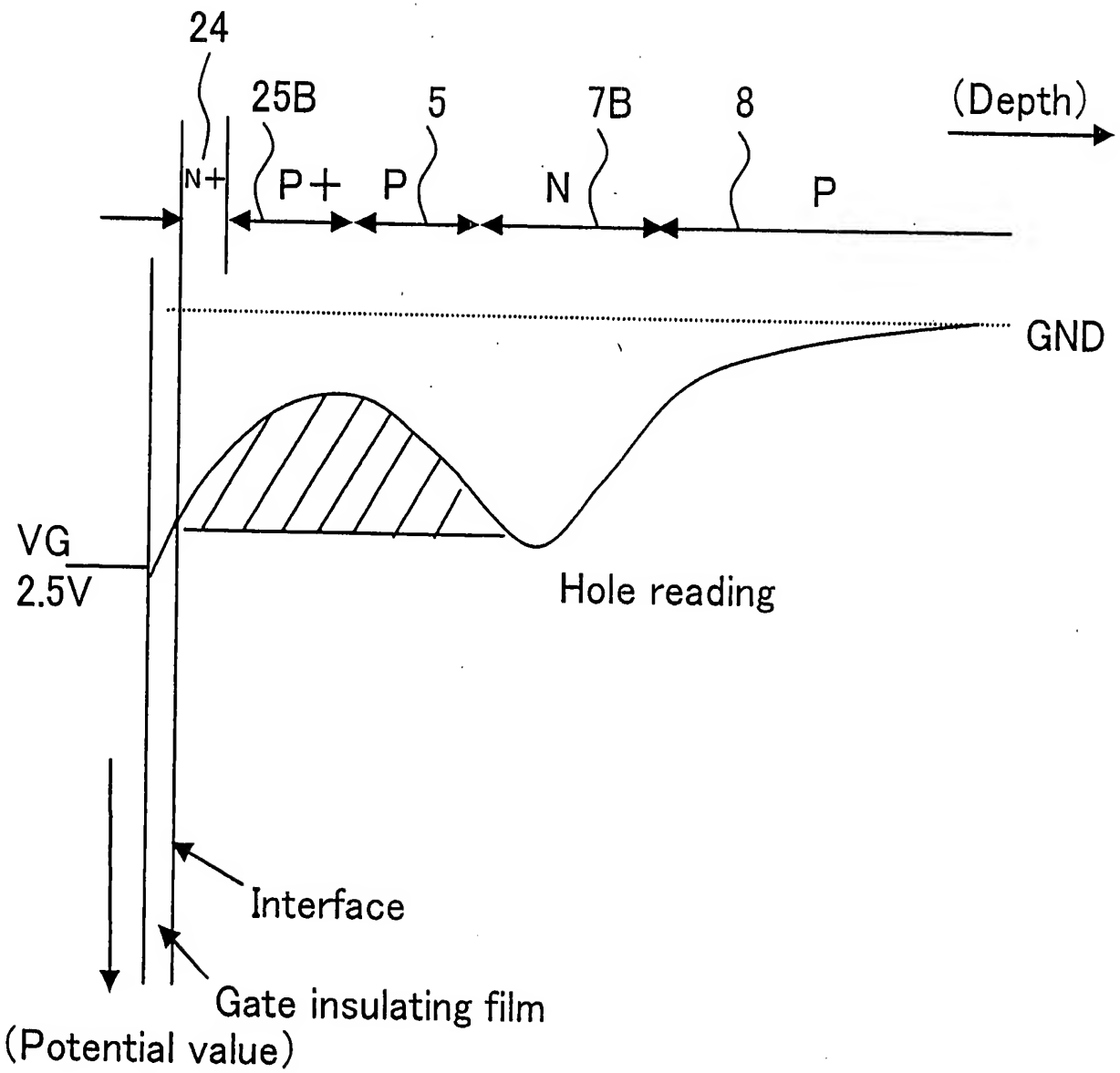

24
25B
5
7B
8
(Depth)
N+
P+
P
N
P
GND
VG
2.5V
Hole reading
Interface
Gate insulating film
(Potential value)

FIG.6A

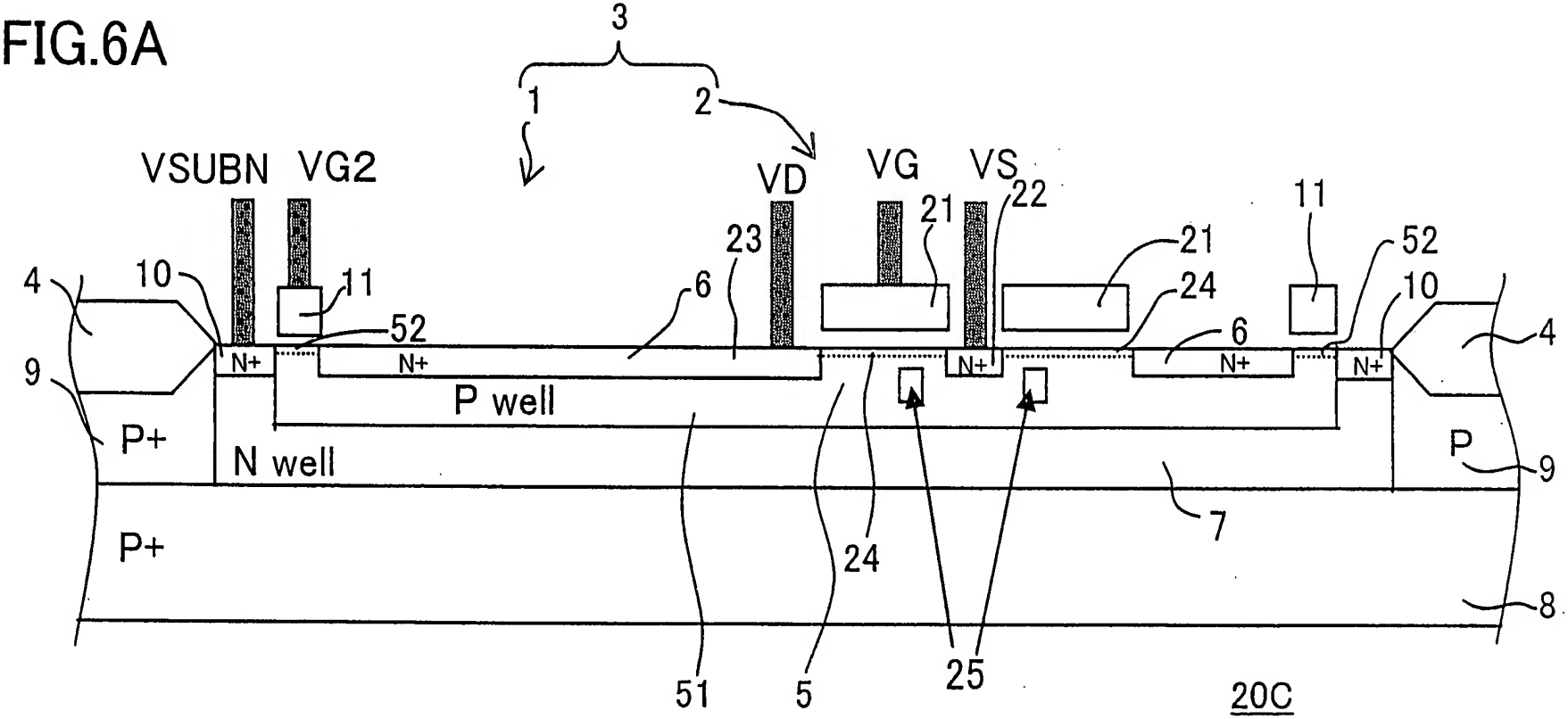

3
1
2
VSUBN
VG2
VD
VG
VS
4
10
11
52
6
23
21
22
21
24
11
52
10
6
4
9
N+
N+
N+
N+
N+
P well
P+
N well
P
9
P+
7
24
8
51
5
25
20C

FIG.6B

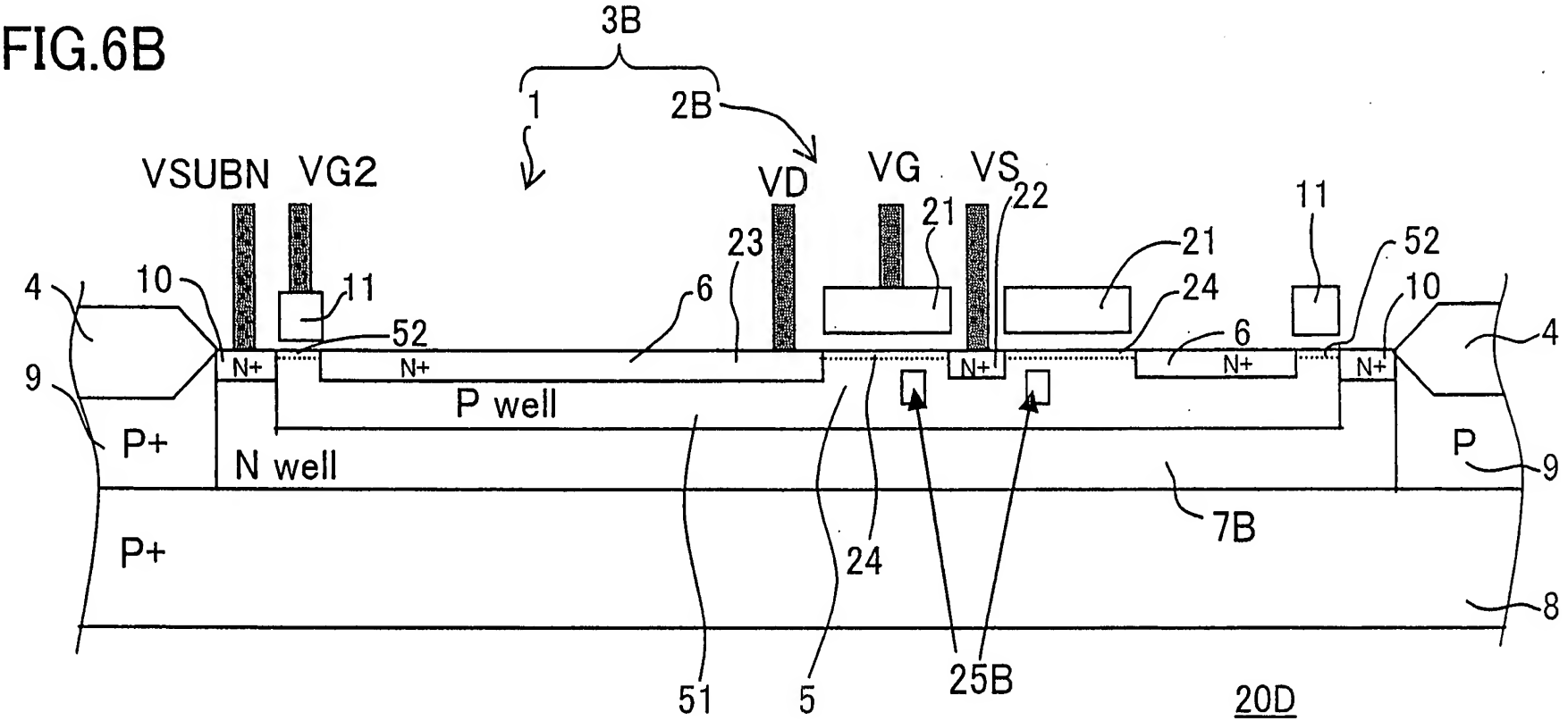

3B
1
2B
VSUBN
VG2
VD
VG
VS
4
10
11
52
6
23
21
22
21
24
6
11
52
10
4
9
N+
N+
N+
N+
N+
P well
P+
N well
P
9
P+
7B
24
8
51
5
25B
20D

FIG.7

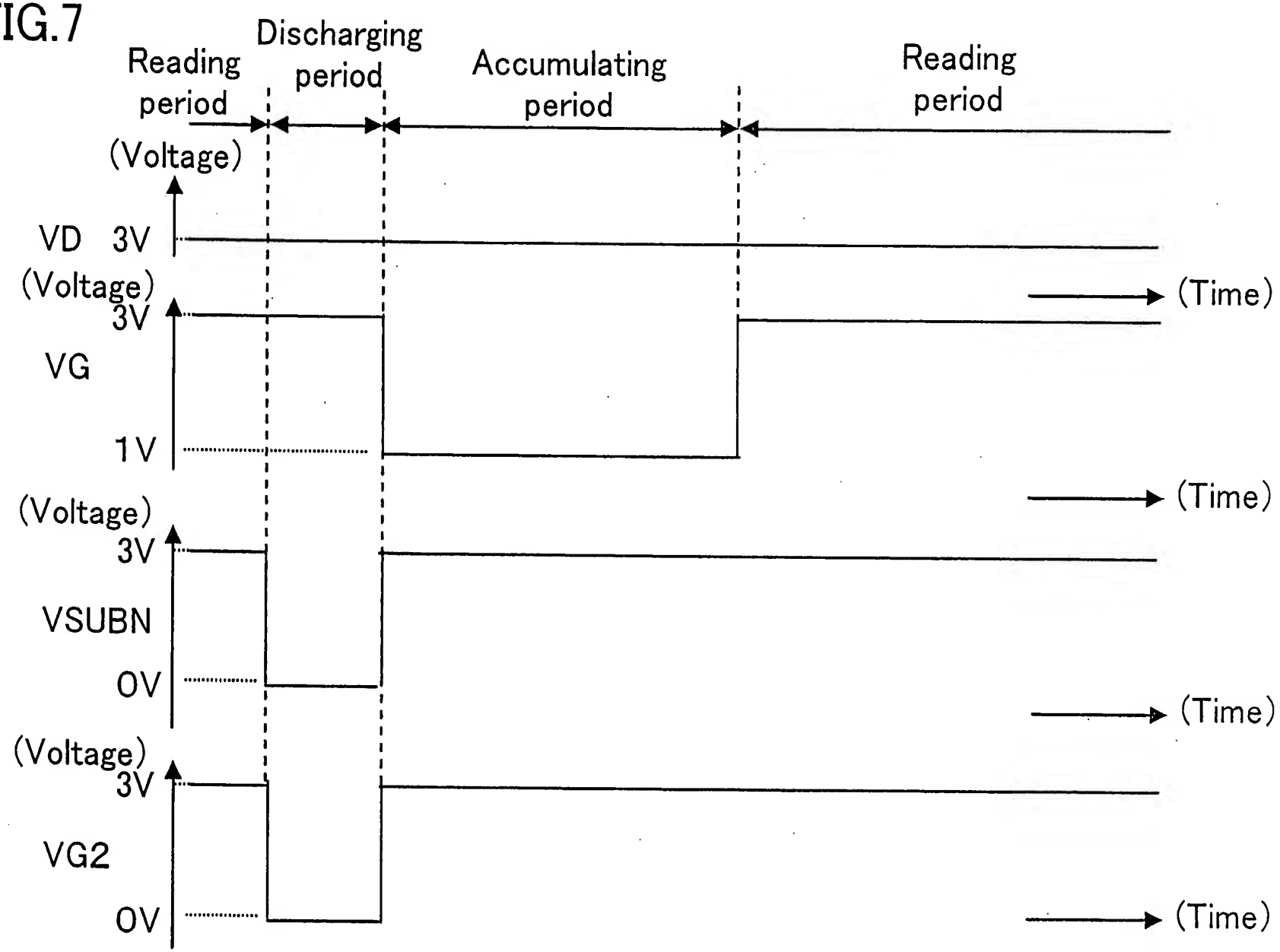

Reading period
Discharging period
Accumulating period
Reading period
(Voltage)
VD 3V
(Time)
(Voltage)
3V
VG
1V
(Time)
(Voltage)
3V
VSUBN
0V
(Time)
(Voltage)
3V
VG2
0V
(Time)

FIG.8

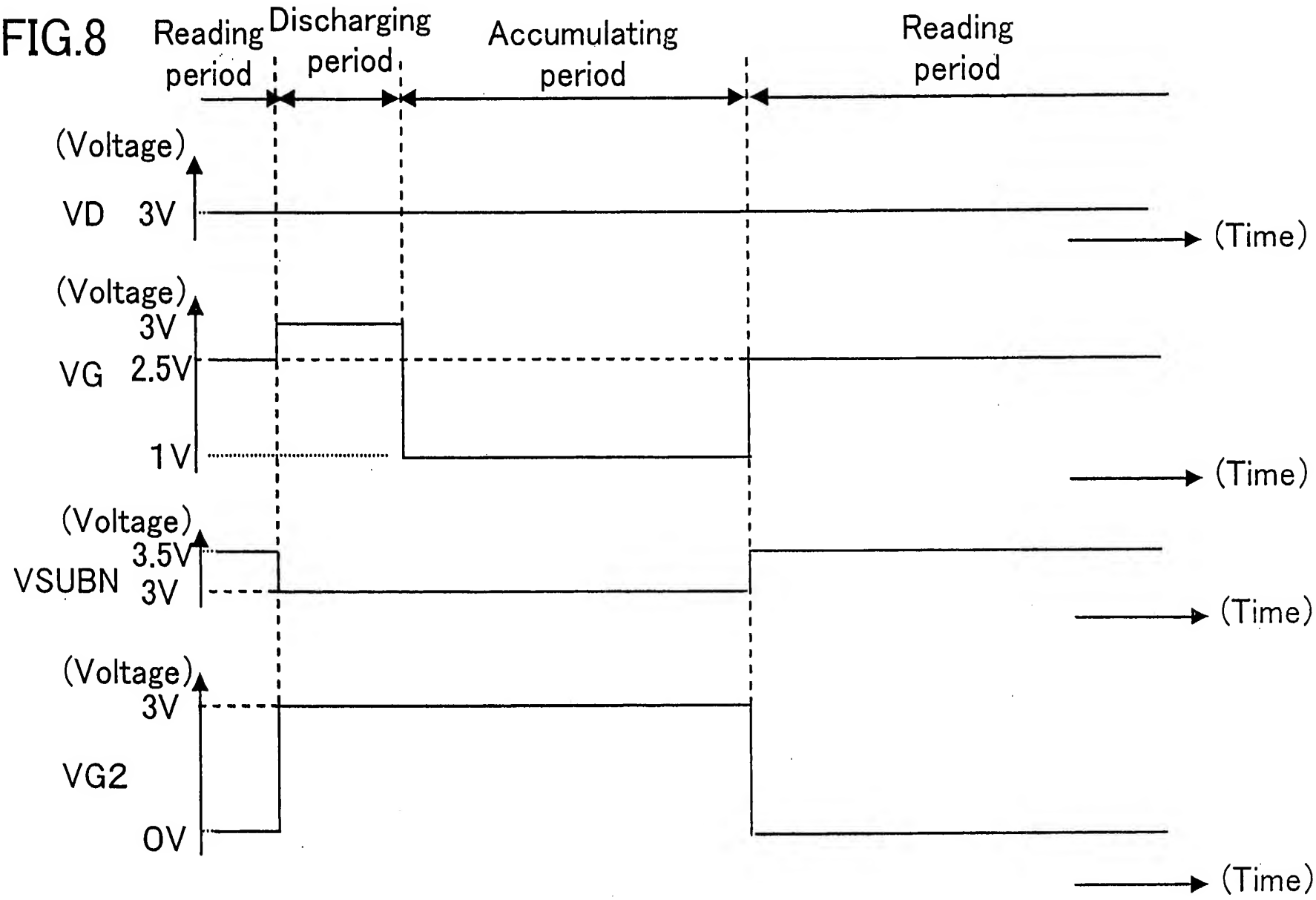

Reading period
Discharging period
Accumulating period
Reading period
(Voltage)
VD
3V
(Time)
(Voltage)
3V
VG
2.5V
1V
(Time)
(Voltage)
3.5V
VSUBN
3V
(Time)
(Voltage)
3V
VG2
0V
(Time)

FIG.9

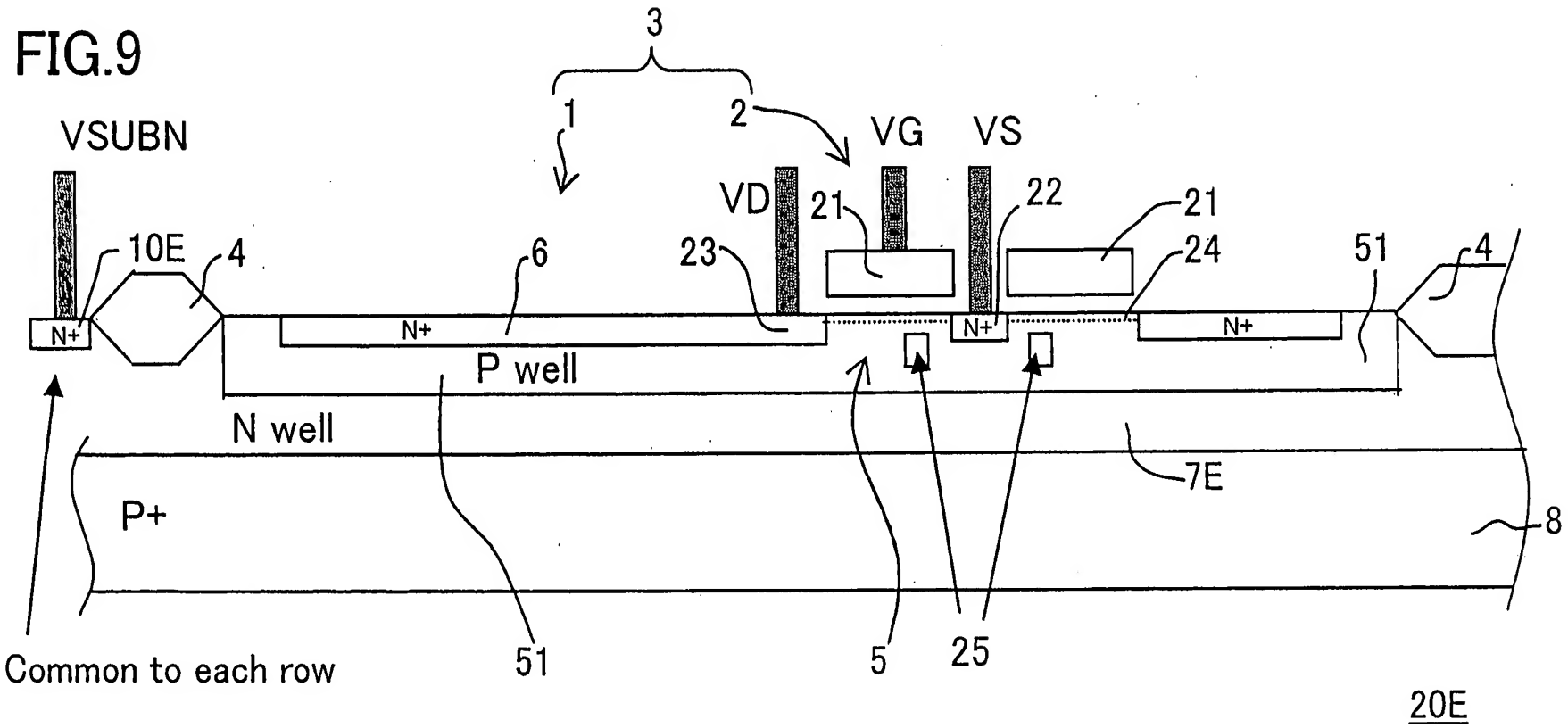

3
1
2
VSUBN
VG
VS
VD
21
22
21
10E
4
6
23
24
51
4
N+
N+
N+
N+
P well
N well
7E
P+
8
Common to each row
51
5
25
20E

FIG.10

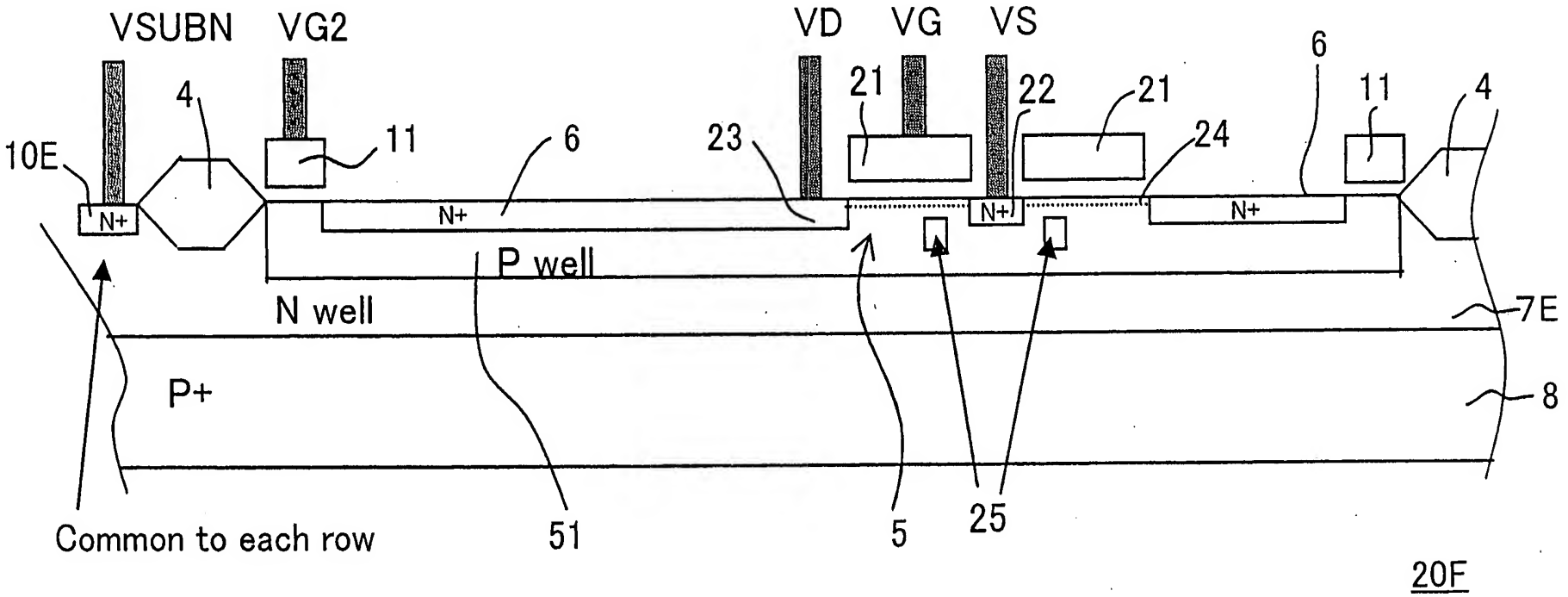

VSUBN
VG2
VD
VG
VS
10E
4
11
6
23
21
22
21
24
6
11
4
N+
N+
N+
N+
P well
N well
7E
P+
8
Common to each row
51
5
25
20F

FIG.11

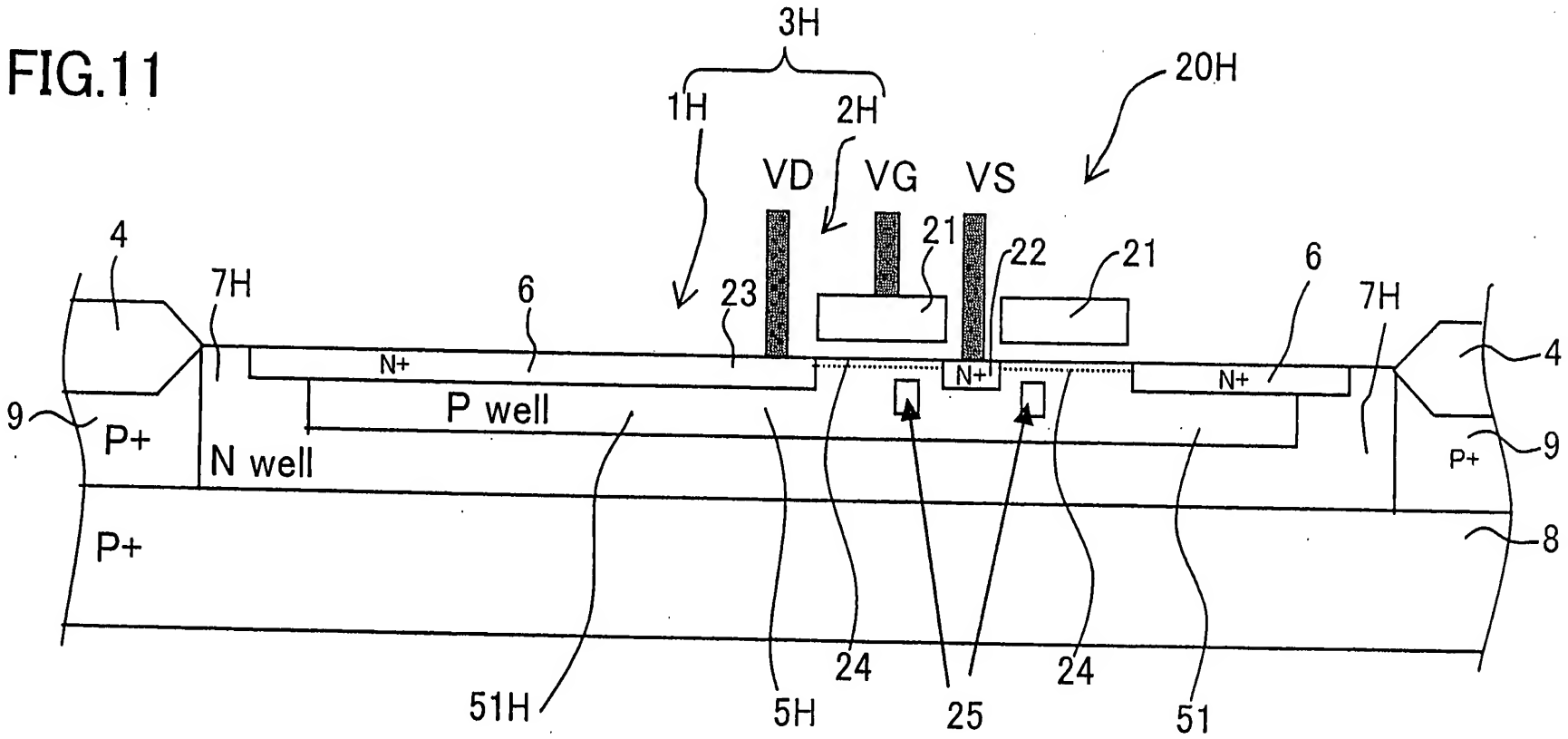

3H
1H
2H
20H
VD
VG
VS
4
7H
6
23
21
22
21
6
7H
4
N+
N+
N+
P well
9
P+
N well
P+
9
P+
8
51H
5H
24
25
24
51

FIG.12

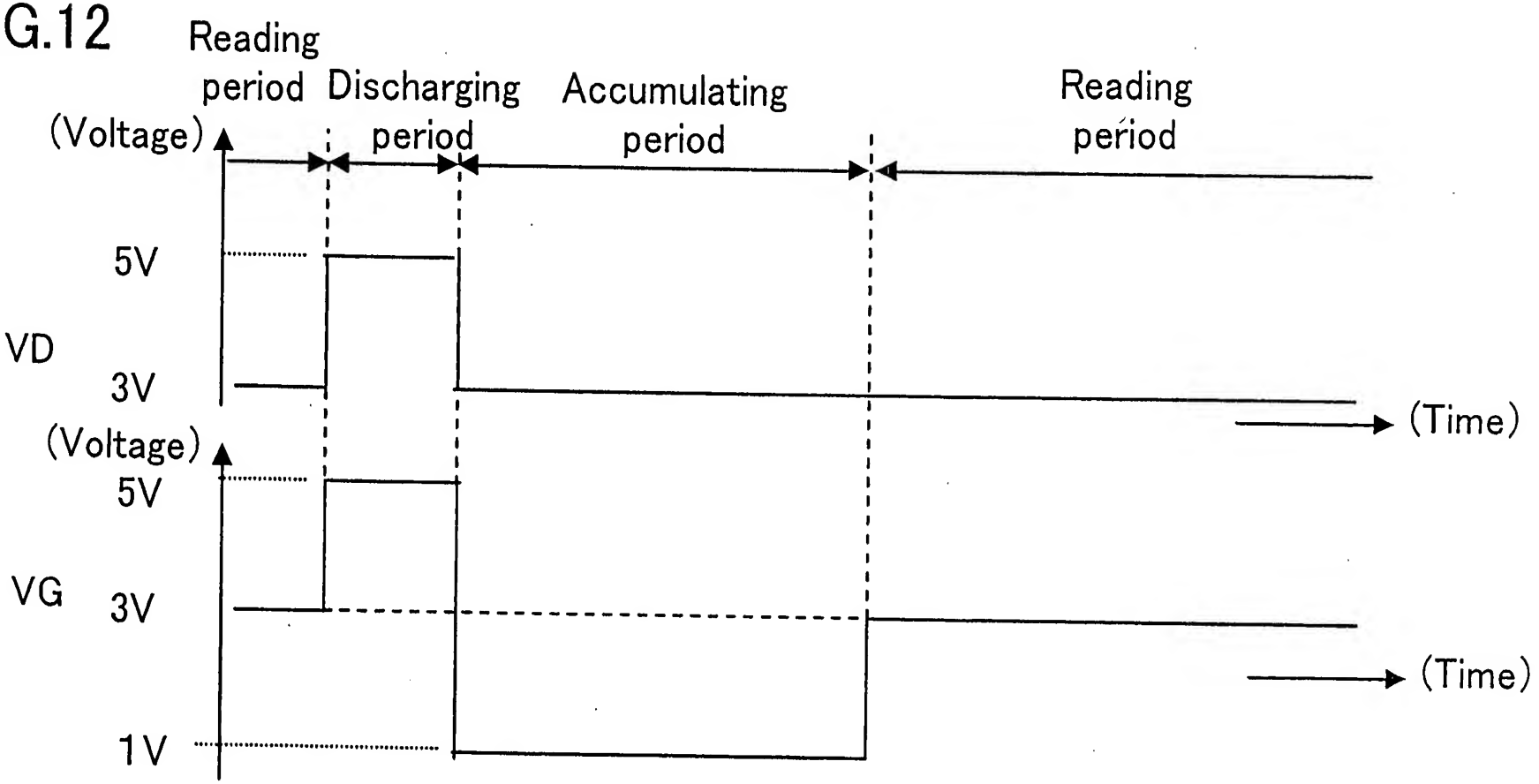

Reading period
Discharging period
Accumulating period
Reading period
(Voltage)
5V
VD
3V
(Time)
(Voltage)
5V
VG
3V
(Time)
1V

FIG.13

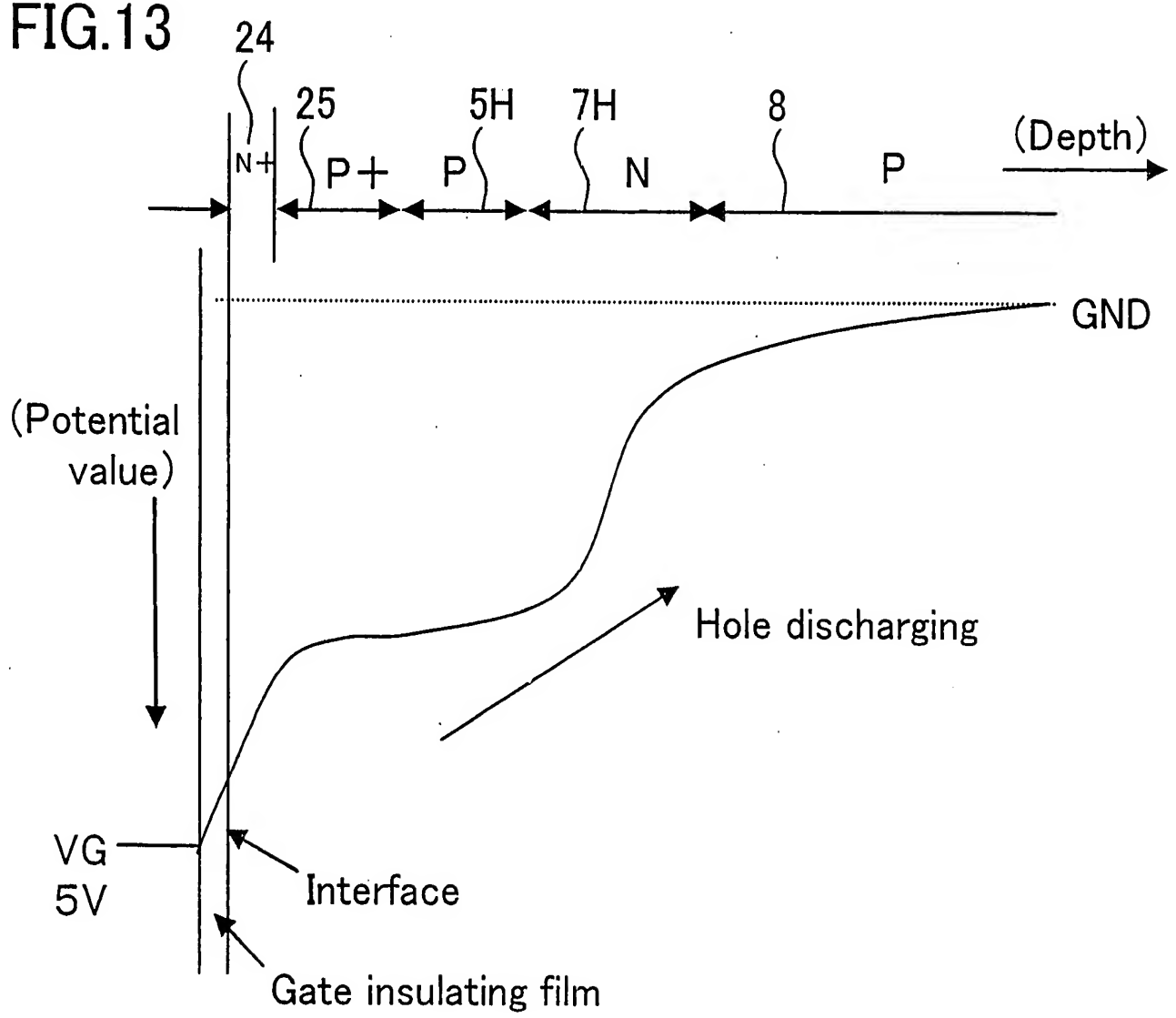
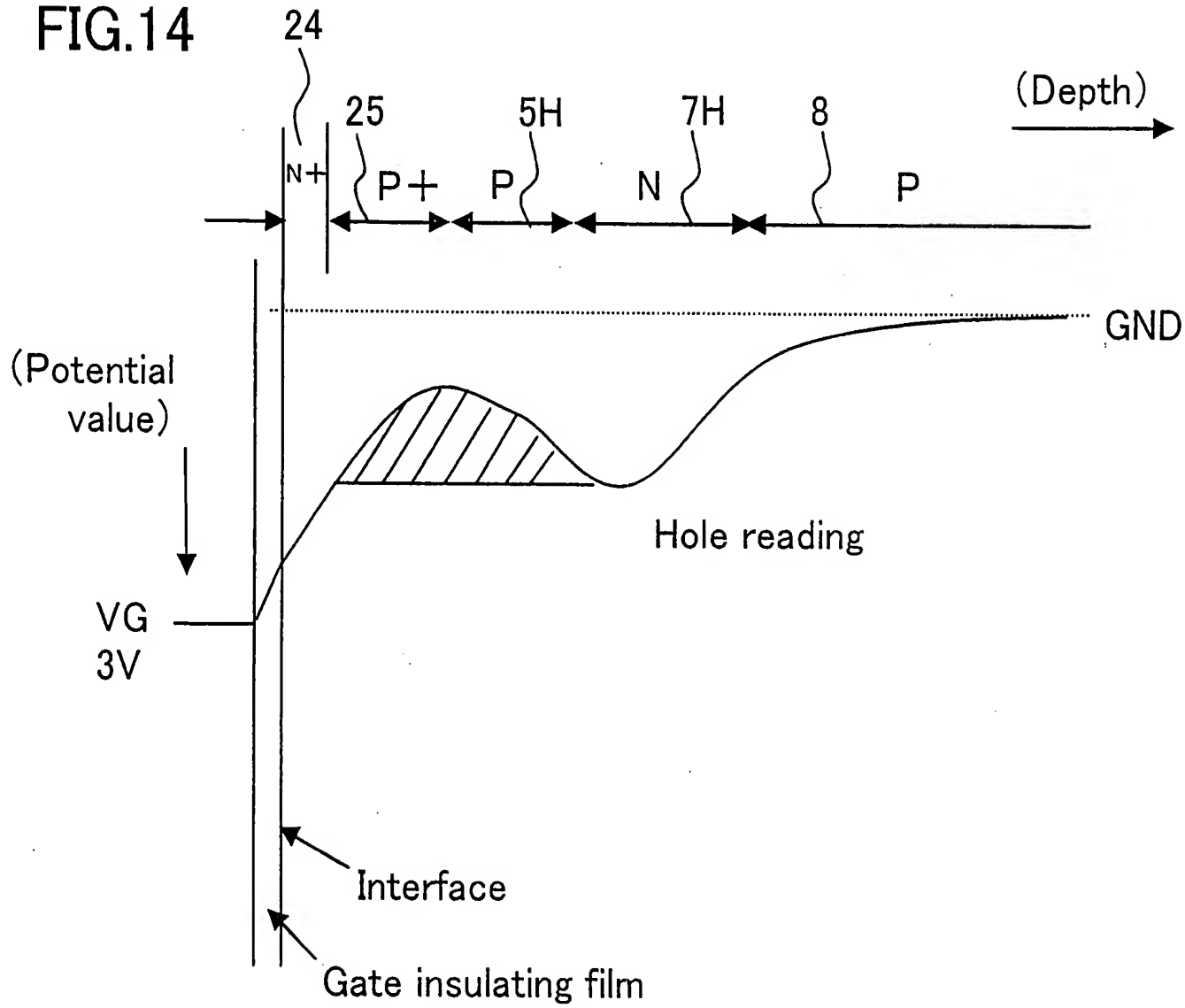

24
25
5H
7H
8
N+
P+
P
N
P
(Depth)
GND
(Potential value)
Hole discharging
VG
5V
Interface
Gate insulating film

FIG.14


24
25
5H
7H
8
(Depth)
N+
P+
P
N
P
GND
(Potential value)
Hole reading
VG
3V
Interface
Gate insulating film